Pocket Notebook
PN-73-00-00.1

This undated pocket notebook is one of three books that Edison took with him to England in the spring of 1873. The entries deal primarily with experiments on cable and automatic telegraphy, including Edison's Greenwich cable tests. Several pages have been torn from the book. Approximately 80 pages have been used.

This notebook was originally filmed in Part I, reel 6, along with several loose pages from PN-73-00-00.3, which had been inadvertently inserted into it. The book has been refilmed here in its entirety.

750
13 ½
2250
750
375
10125

9750
375
10125

10125
1800
11925

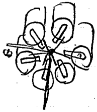
300

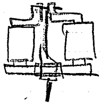
2000
6
12000

2000
3
6000

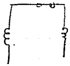
500
1

13
500
6500

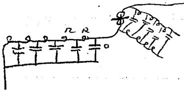




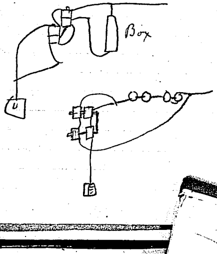
Painter
Liverpool
fair.some
fairsome



13
600
7800
3000
8.100



or with magnetic it might be wound double thus



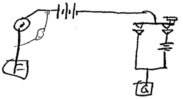
Resistance pretty dry
paper 1 Cup through
Mirror Gal Thomson
500 000 ohms
with 5 Cells 100 000
Showing proportional
to Cells applied

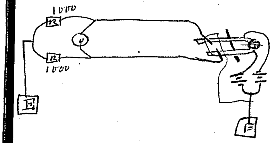
Thomsons Gal will give
quick deflection
through 4 millions
ohms
Mine gives dot
in 10 seconds through

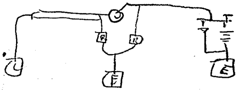
1 Millions ~~me~~ Ohms
~~1 Cup +~~ & Mirror
& ~~it~~ own R of
500 000

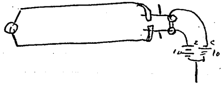
With 5 Cups give
mark right along

hence to make
paper very sensitive
~~g~~ in high resistance
circuits add at
recg insts enough Cups
to just make a scarcely
perceptable mark
& work upon the batty
at other end this




1000
R
G
R
1000
E
E





705 miles cable

0000

130
10
1300

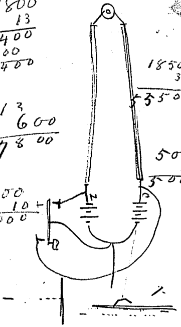
1800
13
5400
1800
23400

1850
3
5550.

13
600
7800

500
10
5000

1900
10 +
19000



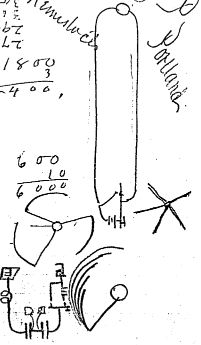
1400
280
300
312
295
270

Kennebec

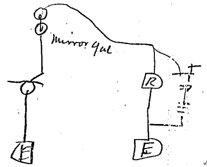
Portland

1800
3
5400,

600
10
6000



1 6000 ohm



No tailing at 20 words per minute but could see that at higher there would be Especially if the Circuit or Resistance for discharging was increased

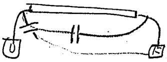
Tester says 1200 ohm Mirrors used for receiving insts low R

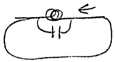
The internal resistance of 300 those Gutta percha batteries is 37000 ohms or 123 $\frac{1}{2}$ ohms per cell oh god

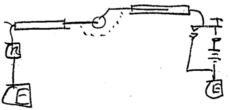
Length sections wire

Sect	Knots	
1 & 7	154.644	1 & 2
2 & 3	187.071	3 & 4
5	130.662	5 & 6
6 & 7	140,596	7 & 8

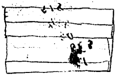
Tester says he & CWy Smith watched Earth Currents all one night at Valentia Changed from P to N Sometimes ½ minute ~~to~~ other 15 minutes he measured potential one time was 50 Cells =

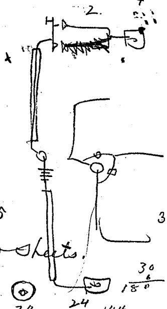






Joints never test as well as regular Core impossible make perfect joint Wetherell says guess thats reason wont allow more battery = Chemical action =





95

31.

6/190 Sheets.

.18
6
108

20
6
120

24
6
144

30
6
180

5/32.

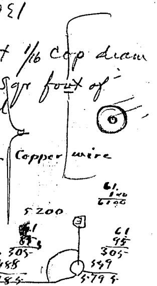
60.

5

61
95
305
549
5795

2/10 1365
130

64 feet 1/16 Cop diam to 1 Sqr foot of Tinfoil



61 feet 1/16 Copper wire

61.
100
6100

61
200
12200

5200

61
85
305
488
5185

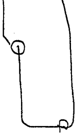
6100

61
95
305
549
5795

61
92
122
549
5612

~~#0~~ realcable.
60 coils ~~10 units~~ 1 1/2 to mile each.
between Each coil, a
Condenser

Greenwich Cable 1000 miles
50. coils of 210 ohms
Each between which place
544 armature Condenser
square feet. 1/2 Earth 1/2 line,
between Each coil



16 miles in each

34
16
204
34
544

13
16
130

13
15
65
13
195

13
16
78
13
208

210
50
10500

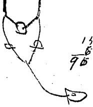
1000.

50
100
5000

105
100
10500

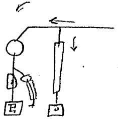
200 - 5 mile coils
to which must be attached
to equal a Condenser at
Each coil to
Equal 170 armature
85 for Line 85 for Ground
85
85
170.

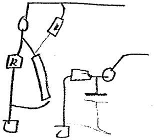
or
100 . 20 mile coils
& 100 170 armature Condenser
or 50 50 miles coils,
+ 50 170 ~~mil to~~
armature Condenser

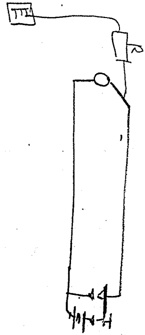


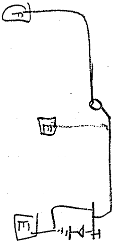
85
17
5
85

15
6
90



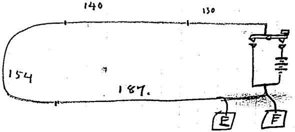

R





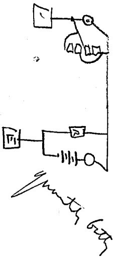
Greenwich Expt

Metallic Circuits:

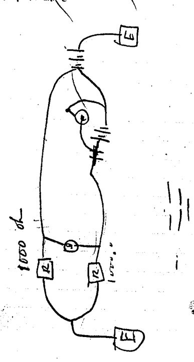


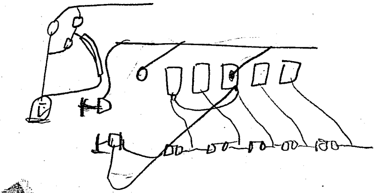
insert instrument and use perforated paper see what speed obtainable with Each section to earth direct & then with all sections on probable result - at high speeds Cable on other side increase speed

Charge Cable fully
& Kill or balance
straight line by boxes
Magnets Thus —
& work quick will very
small spaces


Quantity btty

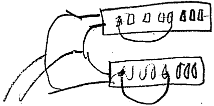
Duplexing the Static
Charge

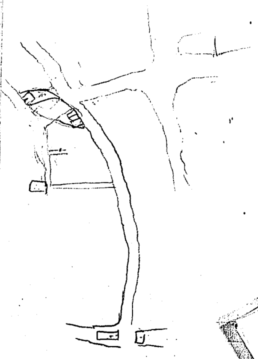




600

300.





Wm Siemens
No 3 Gt George St

295

144
2
288.

72
20
1440

6

8

320, R. 10 miles each
320 C 10," "
Equal 3 times of Cable

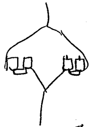
80.
4
320

1200
10.

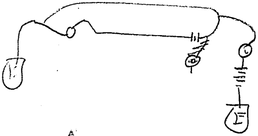
320
10
3200

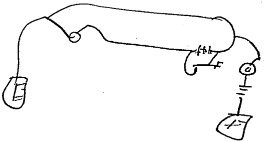
32.
6
192.

Also
[illegible]



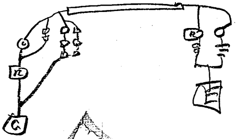
also try this one

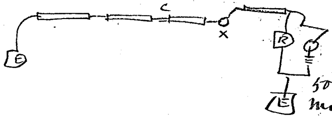




Turn quick
Keep it charged

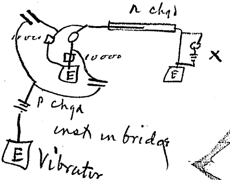
Greenwood





500 w a
minute
turn

Then put X at C


n chgd
1000
10000
E
E
X
P chgd
inst in bridge
E
Vibrator

Good I think
Vary P Chg battery
till it will charge
Cable equal to
X Trans Battery

24
60
15
2150
5
75

1.5

18
24
72
36
432

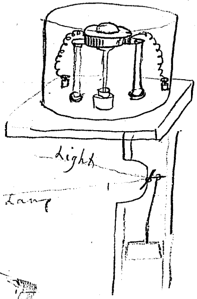
210
7
1470

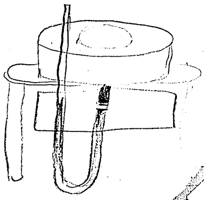
4.

12
18 /

13
20
260.
9
269

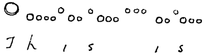
Core in magnet so
that it can be plain
& gradually made
Magnetic =

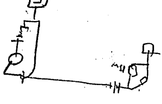


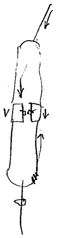


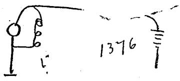
heat Galvanometer

Cable perforada





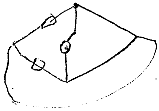

V

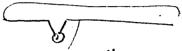


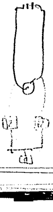
288
4
1152

2

1

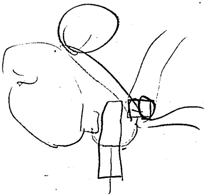






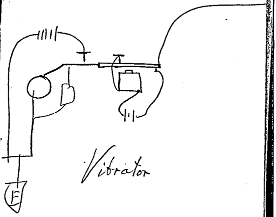
24
13
72
24
314

305

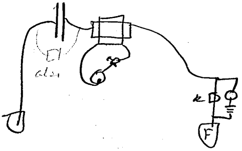


300
4
12

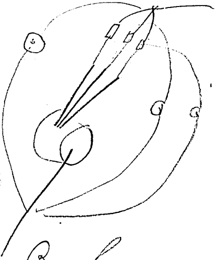
for high R Counter
magnets Try
fine iron wire insulated
Copper & quantitize



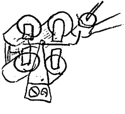
Vibrator



1726
1800



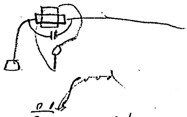
Bigthing

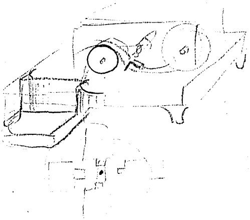


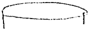
85
8
680.

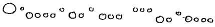
85
7
595

85
6
510

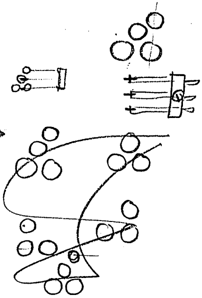


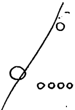






for a half Current
for a dash last
half weak





Use only one hole larger
for dash & make oth
holes smaller
& sep pen insulated

Sen
have 3 Condensers
with wire coil put in
at Washn & Work
Condr System at NY
with Chan if good
send 3 Condrs
1/2 way bet W & Cha

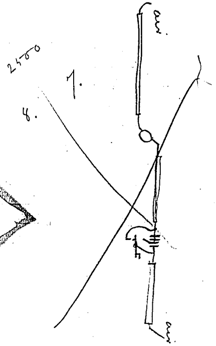
within the circuit
~~to wire~~ So that it would
Exactly neutralize the
Static charge in
So many Knots of
Cable if these devices
Could be put in the
Cable & their Capacity
would remain as
Constant as the Capacity
of the Cable = it would
be valuable =

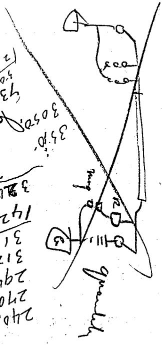
Try two ~~[illegible]~~ disks
of rubber on which
is a strip of zinc
& of Copper Connected
together = This stands
still now another
disk 100th of an inch
from it revolves slowly & elec with
commence rapidly This disk
has one strip Copper.
See if influence would
generate E. + Connect to
Sensitive Galvanometer =

Obtain the thinnest
paper possible &
Experiment Exhaustively
to Reduce the R of
the paper

Also Experiment
of organic & inorganic
Colors to bleach
with the Ozone of
the pen =

Greenwich

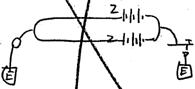

2500
7.
8.
air
air

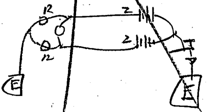

G
Greenwich

240.
270
295
312
310
1427
3[illegible]
73

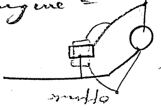
3350.
3050
!!
43
50
(23

Greenwich





Charge & discharge a large Condenser or several large Condsrs, Through a very delicate high R Engine - Revolving Armature = So as to get a perpetual revolution in the Engine =



ascertain if some magnetic arrangement might not be made so as to be included within the circuit ascertain if on an artificial of say 500 or even 100 miles, there will be any difference between a battery with zinc & Coke. or Copper or other higher metal & Coke = also on same Cable see if there is any difference, between or see if and record is made on at least 500 miles of artfcl Cable by keeping a quantity battery of 10 cups on & make signals by putting on ten & taking off - the Extra ten arranged to give Extra quantity only

also ascertain if better signals can be

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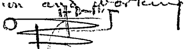
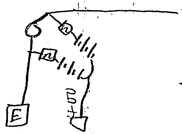
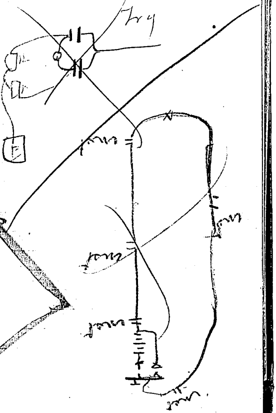
received over an art with 50. Cups. Bridge put & kept on line at rec station and working



with 10 cups at sending station, in trying the difference take battery out bridge but keep it on & at same resistance

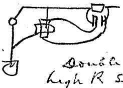
The



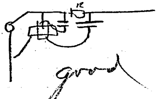


1 Knot.

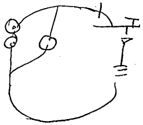
8 by 8.



Double Condsr
high R Secdy
Chge C opposite



good



$$\begin{array}{r}118\\ 300\\ \hline 35400\end{array}$$

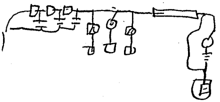
$$\begin{array}{r}120\\ 300\\ \hline 36.000\end{array}$$

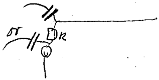
$$\begin{array}{r}122\\ 300\\ \hline 366^{00}\end{array}$$

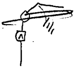
$$\begin{array}{r}123\\ 300\\ \hline 369^{00}\end{array}$$

$$\begin{array}{r}124\\ 300\\ \hline 372^{00}\end{array}$$

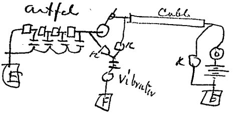
$$\begin{array}{r}123\tfrac{1}{2}\\ 300\\ \hline 36900\end{array}$$



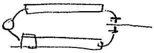


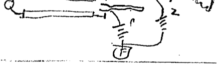


Try more wires in
Compensating Magnet
also in that secondary
Inductn Coil Compensator


artfcl
Cable
R
R
Vibrator
K

Something in it



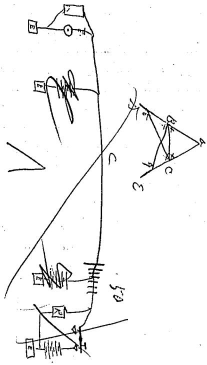

or to ground
2

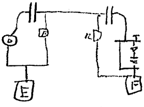
See if through 500,000
ohms anything can be
put into the Iodide
that will reduce its
resistance = and obtain
the mark with one cup
of battery = In testing
the sensativeness of
iodized paper ~~test~~ with
one or two cups battery
through 500 000.
Through this resistance
Try and see which batty
② cups Daniell or grove
will give the mark
quickest =

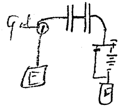
It may be that
Signals may be given
with 20 cups grove

& spaces by 20 cup
Daniel
Secondary batteries

Have 6. foot square
lead sheet or Coke
Secondary batter
Made to be used at
receiving End these
send back charge
& act like a
Condenser but have
the advantage
that they hold a
long back charge
& low Resistan
it may be that they
cannot be put
in the main if so
place in shunt



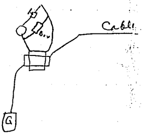




Varly Cable
System

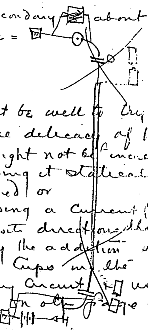
Try this obtain some
metal that will not
decompose iodide
& then attach it to the
platina pen so as to
reduce Resistance

Gutta P Wks
Wharf Road
City Road
N



It is probable that the return magnetic charge can be obtained freer & with less shunting of the current by this arrangement that directly by magnets. The primary coil should have probably 5000 ohms Res

& the secondary about the same =



It might be well to try & see if the delicacy of the paper might not be increased by keeping it statically charged or by passing a current (local) in opposite directions through it or by the addition of several cups in the secondary circuit & use no box on other page -

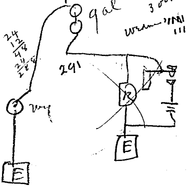
When I get home have 1000 cups glass 1/2 size Cable Gutta P Cups made for ~~testing~~ at someones Expen

780.

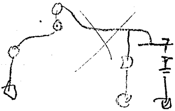
35000
750
2720

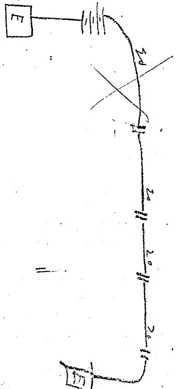
150
270
295
715

300. 9.



9al
wram
24
12
48
24
288
291
E
E





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20
m

12-111 Shelf 1

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R from 50000 On